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Analysis of Debt Financing and Financial Performance of Listed Manufacturing and Allied Firms: Unbalanced Panel Approach

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Abstract
Globally, the manufacturing industry is a crucial engine for sustaining economic growth and development. The sector's contribution to Kenya's economy has stagnated at around 10% of the gross domestic product (GDP), contributing an average of 10% from 1964-1973 and rose marginally to 13.6% from 1990-2007 and has been averaging below 10% in recent years. It however dropped to 8.4% in 2017. The renewed effort to revive the sector through the National Government Big 4 Agenda is expected to grow its contribution to GDP to 15% by 2022. Financing structure is imperative to maximize the company's profitability and improve its competitiveness ability to realizing the National Government Medium Term Development Agenda. This study applied dynamic unbalanced panel analysis techniques using Secondary data for 10year period (2010 - 2019) with the study population comprising of 9 listed firms and hence census technique was adopted resulting to 86 observations. Document analysis guide was used to gather quantitative data from the firms' financial statements. Focus was on debt financing. Pearson correlation was used to show the strength and direction of association among the variables. Short term debt financing was negatively and significantly correlated to Tobin Q; (r = -0.4790) and negatively correlated with LnEVA (r = -0.5032) giving negative and significant effect on performance as shown by the regression weights estimated by GMM. Long term debt ratio (LTDR) has a fairly moderate and positive correlation with Tobin Q (r = 0.4388). It is also strongly correlated with LnEVA (r = 0.6570). The regression coefficients were also positive and significant for both performance proxies. The study recommended that the managers of MAFs need to minimize use of short time financing sources and concentrate on recovering cash flow quickly to minimize need for short term financing. Long term financing sources improve performance and need to be enhanced. Additionally, the government need to reduce the cost of borrowing Future studies can consider a balanced panel analysis and other panel data econometric techniques.
Keywords: Short term debt ratio, Long term debt ratio, Manufacturing and allied firms, performance
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1.0 Introduction

Basically, there are different financing options comprising of short-term and long-term debt, equity and retained earnings financing (Akingunola, Olawale, & Olaniyan, 2018). Short term debt includes the financial obligations with a maturity period of one year or less. Long term debt is made up of the financial obligations with maturity of more than one financial year. On the other hand, retained earnings comprise of reserved profits that are not distributed to the shareholders. Equity is made up of owners invested funds in the firm. All these funds make up the financing structure which can be equity, debt, retained earnings whose contributors can be the shareholders, bond or debenture holders who expect a return on their investment.

Most companies prefer to use more debt in their financing mix with expectations of achieving better financial performance as the proportion of debt increases. This however, subjects the firm to greater risk since increasing debt expands the potential for reduction in gains at a rate higher than the potential for increase in returns. Regardless of this principle of increasing risk as debt expands, some firms apply more debt and also perform better than others who apply minimal debt. To improve the overall market value, firms need to be innovative and diversify financing choices by either adopting lease financing, issuance of convertible bonds, warrants, forward contracts, trade bond swaps and other marketable securities in various proportions to minimize costs of financing and in turn raise the market value of the firm (Abor, 2005).

Deterioration of firm value has adverse effects on both the firm and its stakeholders. A notable case whose effects spread throughout the world occurred on September 15, 2008, in the US when the Lehman Brothers filed for bankruptcy. The bankruptcy was due to a conglomerate of a multiplicity of factors made up of high leverage, adoption of risky investments in its portfolio which subjected the firm into serious liquidity and cashflow problems. To many, Lehman was seen to be "too big to fail" and therefore in the event of any cashflow challenge, the US government could bail it out if no buyer could be interested in purchasing it. However, the company went into bankruptcy and none of the options presented itself to save the company. Borrowing was at its highest with the Leverage ratio having enlarged to 31:1, meaning that a 3–4% decrease in its asset value could water down its capital. Lehman's clients were obligated to provide collateral which was in turn being used by Lehman for various

purposes until it became a nightmare sorting out who owed what to whom. The result was that clients lost their confidence with the company, liquidity and cashflow strain set in as lenders declined to extend roll over funding and this ultimately forced it to bankruptcy (Hull, 2015).

The manufacturing sector is the foundation of innovation and technical change since most innovations are first introduced and commercialized in this sector, making it the core driver of technical change and economic development hence occupies an extraordinary position in the minds of policy-makers. (UNIDO, 2013). Globally, the manufacturing sector is instrumental in fostering and sustaining economic growth and development, to create a resilient and robust economy that can create jobs and therefore reduce dependency and alleviate poverty. High growth economies have been persistently supported by manufacturing, industrialization and exports. The Four Asian Tiger countries of Singapore, South Korea, Taiwan and Hong Kong have achieved and consistently maintained high levels of economic growth since the 1960s making them join the league of the wealthiest nations in the world. South Korea and Taiwan are the hubs for global manufacturing and information technology while Singapore and Hong Kong are prominent global financial centers (Investopedia, 2020).

Historically, Kenya's economy has benefited little from manufacturing as the sector's contribution to the gross domestic product (GDP) has been deteriorating. Between 1964-73, it accounted for 10% of GDP and improved to 13.6% from the year 1990 to 2007 but thereafter reduced to below 10%, reaching its lowest in the year 2017 being 8.4%. There is however a renewed effort by the government to revamp the sector through the Big 4 Agenda. Through this, the government expects to achieve 15% contribution to GDP by the year 2022 from the manufacturing sector to realize the expected economic resilience and stability (KAM, 2018).

Past studies on the subject have found divergent results and thus led to divergent conclusions on the same. Onalapo & Kojala (2010) found that profitability is negatively affected by leverage. Many profitable firms have a preference for lower leverage, Jang (2011). Soumadi & Hayajneh (2012) studied Jordanian firms and found a negative correlation between firm performance and leverage. Some studies however reveal zero or very poor relationship between leverage and firm performance, Tang & Jang (2007). Ebaid (2009) studied the relationship between financing structure and performance of Egyptian firms and found that financing structure has poor or no effect on firm performance.

Modigliani & Miller (1958) financing structure irrelevance, Modigliani & Miller (1963) which modified their earlier model on capital structure irrelevance theory. Trade off Theory which which posits that the financing decision of a firm entails a trade-off between the tax benefit of debts and the costs of financial distress (Myers, 1984). This theory was later contradicted by Pecking Order Theory which was first proposed by Donaldson in 1961 who posits that managers prefer internal equity financing for growth. If there is no internal equity financing, he recommends asset conversion and debt issuance being the last resort. Stewart Myers & Majluf (1984) later popularized the theory by supporting that firms ought to pursue an order of hierarchical financing. The current theory sought to test the theories in the Kenyan manufacturing sector focusing on on the economic based performance measures of Tobin Q and Economic Value Added (EVA).

1.1 Objectives of the study

The study sought to analyse the relationship between debt financing and performance of Listed Manufacturing and Allied firms following the Unbalanced panel approach.

The specific objectives of the study were;

i. To establish the effect of short-term debt financing on performance of listed manufacturing and allied firms in Kenya.
ii. To determine the effect of long-term debt financing on performance of listed manufacturing and allied firms in Kenya.
iii. To establish the moderating role of economic growth rate and earnings volatility on performance of listed manufacturing and allied firms in Kenya.

1.2 . Hypotheses of the study

H_{01}: Short term debt financing has no significant influence on performance of listed manufacturing and allied firms in Kenya.

H_{02}: Long term debt financing has no significant effect on performance of listed manufacturing and allied firms in Kenya.

H_{03}: Economic growth rate and earnings volatility have no significant moderating effect on performance of listed manufacturing and allied firms in Kenya.

2.0 Literature review

2.1 Debt financing

This comprises financial resources borrowed for use to finance operations and is therefore referred as capital provided by outsiders. This money has to be paid back to the providers in future periods together with interest

thereon. These obligations could be secured or unsecured. They are applied to finance either asset acquisitions or managing the working capital (Economic times, 2020). This financing choice comes in handy for filling budget deficits in both public and private sector entities (Ochong'a, Muturi & Atambo, 2016). For growing firms, financing through debt is more viable because they have more opportunities for growth and investment and hence could deplete their retained earnings since they retain very little to adequately fulfill the investment and financing needs (Githaigo & Kabiru, 2015).

Financing by use of debt is comprises of both short-term and long-term sources which could be measured in aggregate and also in relation an organization's assets and equity. Short term debt includes liabilities which fall due for a period of one year or less and are normally needed to fulfil short-term financing needs and working capital. These comprises of debtors, short term borrowings from financial institutions, payments for employee benefits, payment for leases and tax payable on income. Further, long term debt comprises obligations which fall due for a period more than one year. Normally, these components are expressed as relative values which are computed as follows for the purpose of this study;

$$Short\ term\ debt\ ratio = \frac{Short\ term\ debt}{Total\ assets}$$

The short-term debt ratio shows the prospect of a company discharging the outstanding liabilities whose maturity is one year or less.

$$Long\ term\ debt\ ratio = \frac{Long\ term\ debt}{Total\ assets}$$

The lesser the long-term debt ratio is, the better standing a company is in. Long-term debt ratio of 0.5 or less is considered healthy.

$$Total\ debt\ ratio = \frac{Long\ term\ debt + Short\ term\ debt}{Total\ assets}$$

$$Debt\ equity\ ratio = \frac{Total\ debt}{Equity}$$

2.2 Financial performance

Financial performance is based on accounting-based indicators and economic based measures of performance. The following measures are applicable for performance measurement however, the current study focused on economic based indicators of firm performance.

2.2.1 Tobin's Q (Q ratio)

It was proposed by James Tobin (1918). It is a ratio of the market value of a firm's shares to the cost of replacing the physical assets of the firm. The ratio signifies growth opportunities available to a firm. It states that if q > 1, the firm could earn more profit by investing extra resources because at that level, profits generated would surpass the cost sacrificed on the assets. On the other hand, for q < 1, it means that a firm would lose if it invests in extra resources and therefore, it performs better by selling its assets instead of using them in production. The perfect condition is where q is tending toward or equal to 1 as this implies that the firm is in an equilibrium state. Tobin's Q as a performance proxy shows the level at which outside investors regard the company (Ramli, Latan & Solovida, 2019; Rajan & Zingales, 1995).

$$Tobin's\ Q = \frac{Total\ market\ value\ of\ the\ firm}{Total\ asset\ value\ of\ the\ firm}$$

Since the cost of replacing the total assets cannot be estimated with ease, a different version of determining the Q ratio follows;

$$Tobin's\ Q = \frac{Equity\ market\ value + Liabilities\ market\ value}{Equity\ book\ value + liabilities\ book\ value}$$

For calculation purposes, it is assumed that the book and market value of liabilities is similar and hence, the liabilities cancel out each other and disappear from the equation. Considering this assumption, the formula reduces to;

$$Tobin's\ Q = \frac{Equity\ market\ value}{Equity\ book\ value}$$

2.2.2 Economic value added (EVA)

EVA is also called economic profit. It is based on the notion that real profitability is realized when projects generate returns in excess of their financing cost and hence create additional wealth to the shareholders. This performance proxy and a measure of the firm's ability to create wealth since is superior by 50 % to other accounting-based measures (including EPS, ROE and ROA) and it better explains changes in the stockholders wealth (Stewart 1994).

Managers can use EVA to better assess the adequacy of earnings their firms generate. When generated returns are less than the financing cost, EVA is negative implying wealth destruction. The firm is therefore undervalued as its share price will be lower triggering capital flight which could depress the share price further. EVA explains

the tradeoff between the income statement and statement of financial position involved in value creation. Jensen (1993), Professor Emeritus, Harvard Business School proposed a rule in relation to performance measures and held the view that if it is a ratio, then it is wrong. EVA, being an absolute value applies well to investors since they are normally interested in absolute gains and not ratios.

Finance managers applying EVA as an evaluation measure recognize that, capital applied need to be compensated as is the case of wages (Shil, 2009). Following this approach on capital employed, the managers have a changed view of the organization as they also become entrepreneurs and hence they become more concerned and responsible as regards the investment. Proponents of EVA opine that its adoption enables organizations to better assess the value a firm creates across time. It should therefore form the foundation of evaluating investments in relation to the financing choices and options available (Ray, 2012).

It is calculated as follows;

$$EVA = NOPAT - (WACC\ X\ Capital\ invested)$$

$$EVA - Economic\ value\ added$$

$$NOPAT - Net\ operating\ profit\ after\ tax$$

$$WACC - Weighted\ average\ cost\ of\ capital$$

$$WACC = Kd\ (1-t)\frac{D}{D+E} + Ke\ \frac{E}{E+D}$$

$$Capital\ Invested = Total\ Assets - Current\ liabilities$$

2.3.1 Economic growth

Economic growth was used to manage and control for the macroeconomic performance which is linked to market conditions as an exogenous variable specified by Myers (2001) as anchored in the trade-off model of financing structure. This was measured by annual growth of real gross domestic product (GDP). Pecking order theory posits that leverage should decline when the economy is growing as firms can easily generate revenue from their normal operations and hence internal sources can provide sufficient funds.

According to (Saif – Alyousfi, Md – Rus, Taufil – Mohd, Taib & Shadar, 2020), GDP has no significant effect on financing options and therefore the choice is purely by considering the costs and benefits of either source. In the case of the Kenyan context, real GDP growth rate has been found to impact leverage positively (Ngugi, 2008). This shows that a strong economy can support operations which is a trajectory of investor confidence in a growing economy to stimulate demand hence the possibility upside profits. This was pursued further in this study to check if the relations hold in the manufacturing sector in the current time.

2.3.2 Earnings volatility

This represents the cost of financial distress. It shows the variability of income. Booth, Aivazian, Hunt, & Maksimovic, (2001) used the standard deviation of the ratio of earnings before tax to the TA to measure earnings volatility. Further, Standard deviation of earnings before interest and taxes has also been suggested as a good measure of volatility (De Miguel & Pinadado, 2001). This study therefore adopted the standard deviation of the EBIT deflated by total assets since it is an appropriate measure for observing firm's ability to meet fixed charges. The past five years standard deviation can be measured and also used as a proxy for earnings volatility (Koksal & Orman, 2015; Harris & Roark, 2019).

When volatility is high, firms are fairly unable to raise debt or equity as lenders and investors are not willing to give their resources to a firm with a high risk of default or bankruptcy and this could make the financier forfeit the extended facility or incur more cost of recovery (Moradi & Paulet, 2019). This is because increase in earnings volatility subjects a firm to a high rate of unpredictability and therefore exposes the firm to the risk of inability to pay dividends, interest and debt repayment.

Past studies suggest that debt level of a firm cannot directly affect earnings volatility, because the optimal level of debt decreases the earnings volatility (Khemiri & Noubbigh, 2018). Another study suggests that earnings volatility has a positive and significant effect on leverage (Saif-Alyousfi, Md-Rus, Taufil-Mohd, Taib, & Shadar, 2020). Fama & French (2002) identify a direct relationship consistent with the agency cost of debt, resulting in risky firms borrowing more. These past findings and recommendations suggest that earning volatility being a significant endogenous variable in financing structure could influence the financing option chosen and ability to raise financing by either options hence influencing performance depending on the direction of the influence.

2.4 Theoretical Literature Review

This study adopted the Trade off theory originated from the study of Kraus & Litzenberg (1973), it is based on the premise that financing decision encompasses a trade-off between the tax benefit due to debt financing and the financial distress costs which are incremental expenses that highly geared firms face above the normal cost of financing. Firms adopting the theory normally establish a target DER and works toward achieving it. The set target varies across firms based on different firm characteristics (Myers 1984). The theory was later proposed by Miller (1977) due to the out of the discussion concerning the MM theorem. Inclusion of income tax to the initial irrelevance proposition brought about the debt benefit of shielding earnings from taxes.

Due to the fact that firms have a linear objective function and the absence of offsetting cost of debt, this gave the indication of 100% leverage. Considering this, firms determine the amount of debt and equity to utilize by trading off between the costs and benefits of each financing source. Firms therefore have optimal financing structure where they maximize value through tax shields on debt, distress and agency costs that accompany borrowing. Finance managers endeavor to achieve and sustain the target gearing ratio to avoid deterioration of value. Highly profitable companies would therefore opt to raise their financing through debt as this would increase shareholder wealth due to higher savings through the tax benefits.

Firms which utilize more debt but have minimal profits run the risk of becoming insolvent. Considering that an optimal target level of debt for a firm is not observable, it is thus problematic to frame a perfect model to test this theory. Additionally, whereas debt minimizes tax liability, the extra cost of leverage exposes the firm to slight financial distress (Akingunola et al). According to the theory, tax credits could be utilized by profitable firms and this helps alleviate the chance of bankruptcy (Khemiri & Noubbigh, 2018; Vo, 2017) and therefore improving firm profitability.

Studies in support of this theory include; Nirajini & Priya (2013) and Park & Jang (2013) whose findings reveal positive association between debt to assets ratio and ROA. LTDR was found to affect ROA and ROE positively with the gradients indicating the ideal level of debt to maximize value and wealth creation.

The theory has however been criticized on the basis of lack of ideal gearing level. Therefore, application of more and more debt amplifies the debt related costs and thus outweighs the tax benefits of debt and therefore eroding the positive influence of leverage on the value of a firm (Cuong & Canh, 2012). Javed, Younas & Imran (2014) found debt to assets ratio have a negative effect when financial performance was ROE, Wu & Josh (2019) in the case of U.S. manufacturing companies. TDR was found to have a significant negative effect ROA which affirms the notion of debt related cost outweighing the tax benefits and therefore an optimal point is necessary. The theory was relevant to this study since debt is a significant component in the financing structure and is a variable under study to assess the effect of the balance between interest tax shield and distress costs on performance to assess whether the relations hold in the Kenyan context by applying economic based performance proxies.

2.5 Empirical Literature Review

2.5.1 Debt financing and financial performance

Salim & Yadav (2012) study on Capital Structure and Financial Performance of Malaysian Listed Companies, adopting a panel data approach for a sample of 237 companies adopted TDR, STD and LTD as explanatory variables. ROA, ROE, EPS and Tobin Q were the output variables. The sample was constituted by firms in six sectors; construction, industrial product, consumer product, plantation, property, trading and service whose data was extracted for the period 1995 – 2011. The findings indicated existence of a negative relationship between TDR, STD and LTD with ROA, ROE and EPS. This could be attributed to the higher cost of debt that highly leveraged companies face as they are considered to be riskier compared to firms with low leverage this in turn shrinks the return to shareholders and hence a depressed EPS. On the contrary, the explanatory variables were found to have a strong, positive and significant effect on Tobin Q and recommended for further research to examine firm performance by inclusion of more variables of financing.

Yasin & Pramita (2021) investigated the influence of profitability and capital structure on the value of mining companies on Indonesian Stock Exchange. The study used secondary data for four years from 2014 to 2017. Purposive sampling was used to select 8 out of the 21 listed companies. Capital structure was proxied by leverage while firm value was proxied by Tobin Q. The study found that leverage improved Tobin Q. This is due to the increasing interest cost which could increase the share price of a company and hence its market capitalization relative to book value and thus amplify Tobin Q. The current study expanded the scope of proxies for leverage and adopted a census to overcome research bias which could arise from purposive sampling.

Dang, Bui, Dao and Nguyen, (2019) investigated capital structure and its relationship with firm financial performance. Their study focused on Food and Beverage firms in Vietnam. Short term debt ratio, debt ratio and long-term debt ratio as financing structure proxies. An unbalanced panel approach was followed considering a sample of 61 kisted firms. Leverage was found to have a strong effect on performance with debt ratio affecting ROE positively and significantly but affecting ROA negatively. More debt impacts negatively on ROA and positively on ROE due to the trade off between equity and debt. Therefore, more debt shrinks the proportion of equity and thus minimizing dilution of EPS thus improving ROE. The current study focused on a different sector, different economy and more robust performance measures.

Tufa (2016) conducted a study on corporate capital structure and its effect on profitability of Manufacturing firms in Ethiopia utilizing a quantitative research design. The study used secondary data through the period 2010 – 2014 for which large tax payer manufacturing organizations formed the unit of analysis. Random sampling technique was applied in selecting a sample of 34 firms. Financing structure variables of interest coverage ratio (ICR), debt ratio (DR), debt equity ratio (DER), long term debt to capitalization ratio (LTDCR), short term debt to total liability (SDTL) and long-term debt to total liability (LDTL). The study controlled for size (SZ), sales

growth rate (SG) and tangibility (TN). Profitability was measured by return on capital employed (ROCE). The study found a significant positive relationship between financing structure variables (short-term liabilities to total liabilities ratio, long-term debt capitalization ratio and interest coverage ratio) and ROCE. Short-term debt rather than long term ones is positively correlated with financial performance. The study therefore recommended firms need to identify a suitable mix of financing structure variables to boost performance of manufacturing firms. The study used only financing variables relating to debt though it exhaustively examined most aspects of the debt component. ROCE is based on accounting profit which is a reporting concept; EVA is more robust as it considers the economic and resource allocation decision and hence, the current study incorporated other components of financing as well as performance.

Nyamoma & Sporta (2020), studied the effect of financing decisions on shareholder value creation of Manufacturing firms listed at NSE. The study adopted Panel Least Square (PLS) regression techniques utilizing secondary. The variables used were debt financing, equity financing, working capital financing and dividend financing on value creation. The study found that debt financing had a positive and significant effect on EVA and recommended that firm managers needed to conduct an analysis of stock holder value creation periodically. The current study proposes to include other financing structure variables, more performance proxies and adopt a dynamic model to capture the persistence of firm value across time.

Githire & Muturi (2015) conducted a study focusing on the impact of capital structure on performance of non-financial firms listed on NSE. The study applied the variables of current liabilities to total assets ratio, long-term liabilities to total assets ratio, total debt to assets ratio and equity on performance which was measured by ROA. Liquidity ratio, age of the firm and segment were the control variables. Explanatory descriptive research design was adopted. The secondary data used for the study covered the period 2008-2013. Multiple regression analysis technique was applied to test the hypothesis The results revealed that financial performance was positively affected by long term debt and equity. On the contrary, short-term debt was found to affect performance negatively in a significant way. The study conclusion was that use of long term to finance a business helps to improve firm's financial performance due to the spread of the repayment over a long period relieving the firm unnecessary pressure and hence according them an opportunity to reorganize their operations. The study used one performance measure variable whereby the current study incorporated more variables to measure performance of a firm to the various stakeholders and a more robust research design and advanced econometric analysis techniques.

Kodongo, Mokoteli & Maina (2015) studied on the capital structure, Profitability and Firm value focusing on listed firms in Kenya. Leverage, Firm size, Asset tangibility, Sales growth were studied and their effect was being measured on return on assets, return on equity and Tobin's Q. Annual data for the period 2002 – 2011 was used and static panel data models (random and fixed effects models) were used for analysis. The study found that the use of leverage had a significant and negative effect on profitability while having a negative but not significant effect on firm value. This is also a trajectory that more debt is detrimental to firm performance and could cast doubt on the going concern ability. The study further concluded that the debate on capital structure is unlikely to be settled soon since there has been no agreement concerning the appropriate debt to apply in a firm to maximize returns hence create wealth for the shareholders. The study adopted a static panel analysis approach. Research has found that performance is naturally dynamic and hence the dynamic panel data model could be more suitable for a study of this nature hence the current study used the dynamic model and included more proxies of independent variable and an economic performance measure.

Karuma, Ndambiri & Oluoch (2018) investigated the effect of debt financing on financial performance of manufacturing firms in NSE. The study used secondary data for the periods 2013 – 2017 and applied correlational research design. Short term debt was found to have a negative but not significant effect on performance while long term debt had positive but not significant effect on performance which was proxied by ROA. The study therefore recommended that manufacturing companies should issue more debentures as a long-term source of financing since it is a low-cost financing option since the interest to be paid to the debenture holders is generally less than the dividend that could be paid to shareholders. This study focused on a shorter time frame hence the current study.

2.6 Conceptual Framework

The conceptual framework reveals the relationship between financing structure and financial performance of manufacturing and allied firms listed on NSE. Debt financing was conceptualized by short term debt and long term debt. Financial performance was based on economic performance proxies indicated by Tobin q and EVA. This was moderated by economic growth and earnings as was borrowed from the trade – off model of financing structure. Financial performance of manufacturing entities could be influenced by other factors but this study focused only on financing structure variables. The interplay between the study variables is portrayed in the figure 2.1 below.

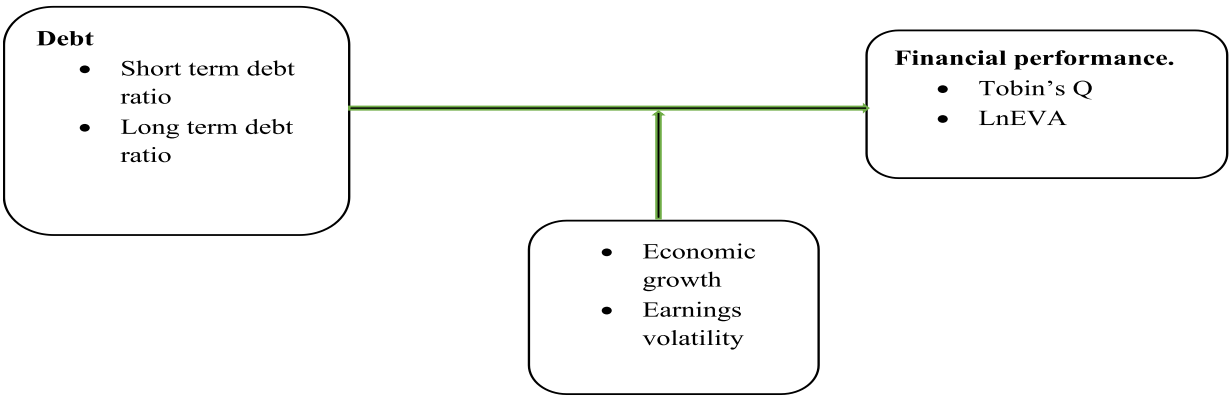


Figure 2.1: Conceptual framework
(Source: Researcher, 2021)

1.0 Research methodology

The study was carried out in Kenya since the units of study were also domiciled in Kenya. The target population for this study comprised the nine manufacturing and allied firms which were listed on the Nairobi Securities exchange (NSE) for the period 2010 to 2019 whose secondary data was gathered from their annual published financial statements. This comprised a total of 86 observations due to missing data during the study period hence the Unbalanced Panel Analysis approach. STATA Version 15 software was used for data analysis.

1.1 Model estimation

Model Selection followed Arellano &Bond (1991) Panel data procedures.
Panel data applies the one-way error component model of the pooled OLS given by;

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots 3.1$$

Y_{it} represents financial performance (Tobin's Q and EVA) of the manufacturing and allied firm *i* at time *t*, with $i = 1 \ldots N = 9$ and $t = 1 \ldots T = 10$.
α denotes the constant term.
β denotes the slope of the explanatory variables.
X_{it} represents a vector of financing structure variables
ε_{it} is the error component which can be decomposed into two components as under;

$$\varepsilon_{it} = \mu_i + \upsilon_{it} \quad \ldots\ldots\ldots\ldots 3.2$$

with $\mu_i \sim IID\ (0, \delta^2 \mu)$ and $\upsilon_{it} \sim IID\ (0, \delta^2 \upsilon)$ are independent of each other and among themselves. Where μi represents the fixed effects, which denotes the individual firm specific effects which are time invariant and are therefore not included in the regression. Furthermore, ν_{it} is the idiosyncratic error term which denotes the remainder of the disturbance that varies with individuals and time and can be thought of as the usual disturbance in the regression. Panel data offers techniques to remove μ_i through the use of forward orthogonal deviations.

The study adopted a dynamic model since Performance is naturally dynamic as performance of the previous period normally affects the current period's performance and hence application of OLS methods to estimate parameters in a dynamic model that includes a lagged dependent variable would thus produce biased coefficients (Flannery and Hankins, 2013). hence the dynamic panel approach in analysis. The dynamic model is formulated by the equation 3.3

$$y_{it} = \alpha + \delta y_{it-1} + \beta x_{it} + \mu_i + \upsilon_{it} \quad \ldots\ldots\ldots\ldots 3.3$$

Given that y_{it} is the dependent variable, y_{it-1} is the lag 1 of the dependent variable, x_{it} is a group of explanatory variables.

1.2 Empirical model

The two-step system GMM estimator was chosen for this study since the one step estimation is less efficient as it assumes homoscedastic errors. It was derived by estimating a system of two equations, one in levels using lagged first differences as instruments and the second in first difference and using lagged levels as instruments.

Data analysis was guided by the following empirical model;

$$Y_{it} = \alpha_0 + \delta y_{it-1} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon_{it} \quad \ldots\ldots\ldots 3.4$$

Based on eqn 3.4, the empirical model was developed as;

$$Tobin\ Q_{it} = \alpha_0 + \delta TobinQ_{it-1} + \beta_1 STDR_{it} + \beta_2 LTDR_{it} + \beta_3 EGR_{it} + \beta_4 EVOL_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots 3.5a$$

$$LnEVA_{it} = \alpha_0 + \delta LnEVA_{it-1} + \beta_1 STDR_{it} + \beta_2 LTDR_{it} + \beta_4 EGR_{it} + \beta_5 EVOL_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots 3.5b$$

4.0 Results and discussion

4.1 Descriptive statistics analysis

Table 4.1 shows the descriptive statistics of the study variables. The mean of Tobin Q for the listed manufacturing and allied firms was 1.5481>1 with a median of 0.1200 implying that the sector was doing well in terms of improving its market value and hence, channeling more resources to the sector would be economically viable since the returns to be generated would outweigh the financing charges and expenses in generating the profit. The sector had a standard deviation of 1.5685 which is generally a low variance and hence, the sector is generally stable in terms of market value and therefore returns could be predicted with low volatility. The sector had a minimum value of 0.1200 and a maximum value of 5.8300 for Tobin Q for the entire study period through 2010 – 2019.

The mean of LnEVA was 16.5662 with a median of 16.5667 which is a trajectory that the sector generated adequate return than the cost of capital. On the other hand, the standard deviation is 1.8766 implying less variation in the sector's returns hence returns could be predicted with minimum deviation. However, the sector had a minimum Ln EVA of 0.0000 since some firms had a negative value of EVA. To generate logs for this, the researcher took the minimum value of EVA (highest negative), then ignored the negative sign and added 1 to it. The sum of this was then added to the original values of EVA across the entire series. The logic supporting this was that the relative difference and relative importance of the series will be similar to the original series. This eliminated the negative values of EVA and hence, log of EVA was now generated for further analysis. The LnEVA had a maximum value of 18.9410 which shows promising prospects from the sector in terms of creating shareholder value. This supports the finding of a significant influence of EVA on stock returns (Sauro & Tafirei, 2016).

The mean and median of STDR were 0.3397 with a median of 0.3182 while the mean and median of LTDR was 0.1999 and 0.1079 respectively. The higher values for STDR in relation to LTDR shows that the firms were adopting a more aggressive approach to financing by employing more short-term debt than long term debt in relative terms. This is against the conventional finance which recommends that more long-term debt is favorable for larger firms so that they spread repayment over long period and focus on growth since having more short-term debt can stifle growth as the firm focuses on defraying the costs relating to operating debt. The mean ratio of debt which is < 1.000 implies that generally, the sector has more borrowing capacity, has a high appeal for investors and lenders and hence its creditworthiness is high. This is a positive state because having relatively less debt than assets means that the firm is solvent and less risky to lend hence could access cheaper credit in the debt market, reducing cost of borrowing as the assets provide sufficient collateral. The standard deviation for STDR and LTDR was 0.1925 and 0.2339 respectively signifying minimal variation. Moreover, the minimum for STDR was 0.0263 with a maximum of 1.3748 while the minimum for LTDR was 0.0000 implying that some firms in the sector operated without applying and long-term debt for some time in the study period while the maximum LTDR ratio was 1.1270 which is also lower than maximum for STDR at 1.3748.

As for the moderating variables, EGR had a mean and median of 0.0584 and 0.0580. The minimum and maximum values of EGR are 0.0460 and 0.0840 respectively. This shows an economy which is on a positive growth trajectory and therefore promising a thriving environment for industry as a growing economy stimulates investment and consumption to meet future expected demand. This is supported by Bakari (2018) who found that investment caused economic growth in Algeria in the Short run. There is minimal variation as shown by standard deviation of 0.0097 indicating a relatively stable macroeconomic environment. The minimum value of EGR was 0.0460 with a maximum value of 0.0840.

EVOL had a standard deviation of 0.0761 showing a small variability in terms of earnings and therefore there is mean reversion in the long run hence the risk in earnings variability is less. This indicates the firms face a low risk of default and bankruptcy. The mean and median of EVOL was 0.0754 and 0.0487 respectively. As a measure of financial distress risk and cost, these are small values and hence indicating confidence in the firms financing ability. It was generally observed that EVOL was low for firms in the sector and therefore this is an indicator that they can raise financing from whichever source. A low EVOL gives lenders and investors confidence as they are willing to give their resources to a firm with a low risk of default or bankruptcy.

Normality tests were conducted by examining the skewness and kurtosis of the distribution. The results revealed that the variables are normally distributed having the skewness values ranging between -3 to +3 which is within the acceptable range for normally distributed data. On the other hand, the kurtosis values ranged from -4 to +4. This implies that the study variables are normally distributed and therefore appropriate for further analysis.

Table 4.1 Descriptive statistics of dependent and independent variables

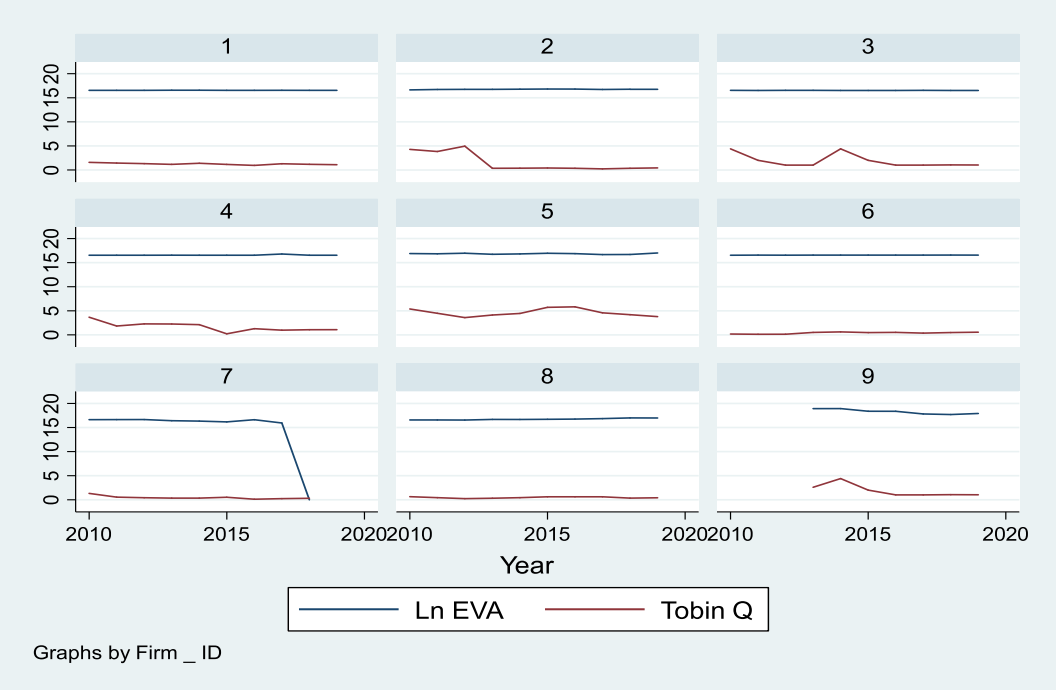
Variable	Obs	Mean	Std. Dev	Median	Min	Max	Skewness	Kurtosis
Tobin Q	86	1.5841	1.5685	1.0200	0.1200	5.8300	1.2871	0.3783
Ln EVA	86	16.5662	1.8766	16.5667	0.0000	18.9410	-1.2052	3.6585
STDR	86	0.3397	0.1925	0.3182	0.0263	1.3748	0.7891	2.7465
LTDR	86	0.1999	0.2339	0.1079	0.0000	1.1270	1.8204	3.0264
EGR	86	0.0584	0.0097	0.0580	0.0460	0.0840	1.4269	2.1822
EVOL	86	0.0754	0.0761	0.0487	0.0203	0.5380	0.3099	3.6876

Source: Research data (2021)

4.2 Panel Line plots for the study units

The study generated panel line plots to show the behavior of the dependent variables across time for each firm. The line plots revealed that the dependent variables do not exhibit large variability in the long run and therefore, they exhibit mean reversion. This is depicted in figure 4.1 below.

Figure 4. 1: Panel line plots for the study units



Source: Research data (2021)
Key: 1= BOC, 2= BAT, 3 = Eveready, 4 = Carbacid, 5 = EABL, 6 = Unga – Group,
7 = Mumias Sugar, 8 = Kenya Orchards, 9 = Flame Tree

4.3 Unit root test

The panel data was subjected to unit root tests to establish stationarity conditions.

4.3.1 Im-Pesaran-Shin unit-root tests

The results in tables 4.2 and 4.3 Show the unit root test results for Tobin Q and ln EVA respectively based on the Im-Pesaran-Shin unit-root test. The test was applied due to its applicability in unbalanced panels. The header of the output summarizes the exact specification of the test and dataset. The IPS W-t-bar statistic is -11.2819 with a p – value of 0.0000 for Tobin Q while the W-t-bar is -0.7061 and p – value of 0.0198 which are significantly less than the 5% significant level and therefore the null of all panels contain unit roots is rejected in favor of the alternate hypothesis that some panels are stationary. This rejection of the null means that some series are mean reverting over time.

Table 4. 2: Im-Pesaran-Shin unit-root test for Tobin Q

. xtunitrootipsTobinQ, lags(1)
Im-Pesaran-Shin unit-root test for Tobin Q

Ho: All panels contain unit roots	Number of panels = 9
Ha: Some panels are stationary	Avg. number of periods = 9.56
AR parameter: Panel-specific	Asymptotics: T,N -> Infinity
Panel means: Included	sequentially
Time trend: Not included	
ADF regressions: 1 lag	

	Statistic	p-value
W-t-bar	-11.2819	0.0000

Source: Research data (2021)

Table 4. 3: Im-Pesaran-Shin unit-root test for Ln EVA

. xtunitrootipsLnEVA, lags(1)
Im-Pesaran-Shin unit-root test for LnEVA

Ho: All panels contain unit roots	Number of panels = 9
Ha: Some panels are stationary	Avg. number of periods = 9.56
AR parameter: Panel-specific	Asymptotics: T,N -> Infinity
Panel means: Included	sequentially
Time trend: Not included	
ADF regressions: 1 lag	

	Statistic	p-value
W-t-bar	-0.7061	0.0198

Source: Research data (2021)

4.3.2: Fisher type unit root tests

The study also conducted the Fisher type unit root tests of Augmented Dickey Fuller (ADF) and Phillips – Perron (PP) unit root tests. Tables 4.4 and 4.5 display stationarity test results based on ADF for Tobin Q and Ln EVA respectively. Additionally, tables 4.6 and 4.7 show the unit root test results for Tobin Q and Ln EVA based on PP. These tests were chosen as they are robust in dealing with unbalanced panel data as was the case for this study. The findings strongly reject the null hypothesis and therefore the data is stationary and will not give spurious or misleading statistical evidence.

The Fisher – type tests consider the parameter P for the autoregressive equation to vary across panels and therefore are panel specific. Choi's (2001) simulation results suggest that the inverse normal Z statistic offers the best trade-off between size and power, and recommends its use in applications. It was observed that the inverse logit L^* test concurs with the Z test. Z has a standard normal distribution and L^* has a t distribution with 5N+4 degrees of freedom under the null hypothesis. The low Z and L^* values cast doubt on the null hypothesis. The inverse chi-squared (X^2) P test is applicable when the number of panels is finite. This statistic has a chi-square distribution with 2N degrees of freedom and large values support the rejection of the null hypothesis. On the other hand, Choi (2001) proposes the use of modified inverse chi- squared Pm for large panels and therefore, the large value of Pm casts doubt on the null hypothesis. Choi's simulation results do not however give a specific value of N for which Pm should be preferred to P.

Table 4. 4: Augmented Dickey – Fuller unit-root test for Tobin Q

. xtunitroot fisher TobinQ, dfuller trend lags(1)
Fisher-type unit-root test for TobinQ
Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels	= 9
Ha: At least one panel is stationary		Avg. number of periods	= 9.56
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Drift term: Not included		ADF regressions: 1 lag	

		Statistic	p-value
Inverse chi-squared(18)	P	87.3387	0.0000
Inverse normal	Z	-2.9060	0.0018
Inverse logit t(49)	L*	-6.8575	0.0000
Modified inv. chi-squared	Pm	11.5564	0.0000

Source: Research data (2021)

Table 4.5: Augmented Dickey – Fuller unit-root test for Ln EVA

. xtunitroot fisher LnEVA, dfuller trend lags(1)
Fisher-type unit-root test for LnEVA
Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels	= 9
Ha: At least one panel is stationary		Avg. number of periods	= 9.56
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Drift term: Not included		ADF regressions: 1 lag	

		Statistic	p-value
Inverse chi-squared (18)	P	31.1776	0.0275
Inverse normal	Z	-1.8986	0.0288
Inverse logit t (49)	L*	-2.0225	0.0243
Modified inv. chi-squared	Pm	2.1963	0.0140

Source: Research data (2021)

Table 4. 6: Phillips – Perron unit-root test for Ln EVA

. xtunitroot fisher TobinQ, pperron trend lags (1)
Fisher-type unit-root test for TobinQ
Based on Phillips-Perron tests

Ho: All panels contain unit roots		Number of panels	= 9
Ha: At least one panel is stationary		Avg. number of periods	= 9.56
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Newey-West lags: 1 lag			

		Statistic	p-value
Inverse chi-squared (18)	P	46.5081	0.0003
Inverse normal	Z	-2.3527	0.0093
Inverse logit t (49)	L*	-3.2820	0.0010
Modified inv. chi-squared	Pm	4.7514	0.0000

Source: Research data (2021)

Table 4.7: Phillips – Perron unit-root test for Ln EVA

. xtunitroot fisher LnEVA, pperron trend lags (1)
Fisher-type unit-root test for LnEVA
Based on Phillips-Perron tests

Ho: All panels contain unit roots	Number of panels = 9
Ha: At least one panel is stationary	Avg. number of periods = 9.56
AR parameter: Panel-specific	Asymptotics: T -> Infinity
Panel means: Included	
Time trend: Included	
Newey-West lags: 1 lag	

	Statistic	p-value
Inverse chi-squared (18) P	52.3147	0.0000
Inverse normal Z	-3.0195	0.0013
Inverse logit t (49) L*	-4.0639	0.0001
Modified inv. chi-squared Pm	5.7191	0.0000

Source: Research data (2021)

4.4 Collinearity diagnostics

To check for correlations with linear combinations among the independent variables, Variance inflation factor (VIF) and tolerance tests were carried out on each of the variables used to generate the model. Table 4.8 represents the results with VIF values being less than 10 and tolerance greater than 0.1 suggesting that multicollinearity was not a problem in this study (Guajarati, 2007; Field, 2015).

Table 4.8: Collinearity diagnostics

Dependent variable: Tobin Q, Ln EVA		
Variable	Tolerance	VIF
STDR	0.444	2.253
LTDR	0.297	3.369
EGR	0.943	1.06
EVOL	0.713	1.402

Source: Research data (2021)

4.5 Correlation Matrix

Table 4.9 shows the correlations between independent and dependent variables. For debt financing option, it is observed that Short term debt ratio (STDR) is negatively and significantly correlated to Tobin Q; (r = -0.4790). This shows a moderate, negative relationship implying that use of short-term debt curtails performance of manufacturing and allied firms as measured by Tobin Q. STDR also has a moderate, negative and significant correlation with LnEVA (r = -0.5032, p = 0.0000). This is a trajectory that more short-term debt curtails the EVA of manufacturing and allied firms through the associated costs of acquiring and servicing debt and thus eroding the returns to providers of other capital components.

Long term debt ratio (LTDR) is positively correlated with both measures of performance. It has a fairly moderate and positive correlation with Tobin Q (r = 0.4388). It is also strongly correlated with LnEVA (r = 0.6570). This therefore implies that financing using long term debt accelerates performance of manufacturing and allied firms. MM theory suggests that firms can take advantage of interest tax shield as more debt means more interest costs which are deductible hence minimizing tax payable from profits. This shield which can improve performance of companies through tax planning purposes to pay the least taxes does not seem to apply and hence this finding supports the tax benefits of debt in the case of MAFs.

Table 4. 9: Correlation matrix
pwcorr STDR LTDR TobinQLnEVA,sig

	STDR	LTDR	EAR	RR	ATNG	TobinQ	LnEVA
STDR	1.0000						
LTDR	0.2408	1.0000					
	0.0094						
TobinQ	-0.4790	0.4388	-0.2682	0.5997	0.6331	1.0000	
	0.0006	0.0002	0.0215	0.0053	0.0022		
LnEVA	-0.5032	0.6570	0.5218	0.3197	0.3683	0.4607	1.0000
	0.0000	0.0489	0.0000	0.0027	0.0005	0.0763	

Source: Research data (2021)

4.6 Panel Cointegration test

Panel Cointegration test was performed. Table 4.10 and 4.11 show the Westerlund cointegration test results when the dependent variables are Tobin Q and Ln EVA respectively which were tested at the 5% significance level. This test has the null hypothesis; Ho: No cointegration. The p – values obtained of 0.4092 and 0.1044 respectively which are > 0.05 leads to failure to reject the null and we conclude that there is no cointegration among the variables and therefore no spurious regressions.

Table 4. 10: Westerlund test for cointegration

Ho: No cointegration Number of panels = 9
Ha: All panels are cointegrated Avg. number of periods = 9.5556
Cointegrating vector: Panel specific
Panel means: Included
Time trend: Not included
AR parameter: Same
Cross-sectional means removed

	Statistic	p-value
Variance ratio	0.2295	0.4092

Source: Research data (2021)

Table 4. 11: Westerlund test for cointegration

Ho: No cointegration Number of panels = 9
Ha: All panels are cointegrated Avg. number of periods = 9.5556
Cointegrating vector: Panel specific
Panel means: Included
Time trend: Not included
AR parameter: Same
Cross-sectional means removed

	Statistic	p-value
Variance ratio	1.2566	0.1044

Source: Research data (2021)

4.7 Model estimation and hypothesis testing

Tables 4.11 and 4.12 below show the results of the two-step system GMM dynamic panel regression models for Tobin Q and EVA respectively as measures of financial performance of Manufacturing and allied firms listed on NSE Kenya in the short run.

4.7.1 Model Reliability and Fitness

The dynamic two step system GMM was tested for reliability using the Wald chi2 – statistic. Tables 4.11 and 4.12 show that the Wald statistic is significant at the 5% level. The Wald chi2 p-value of 0.0000 < 0.05 leads to rejection of the null hypothesis of zero coefficients and we therefore conclude that all the explanatory variable coefficients are significantly different from zero at the 5% significance level. The model also appears to fit well as the Sargan and Hansen test results for instrument validity are > 0.05 and hence we fail to reject the null that instruments are valid and therefore no evidence of over identifying restrictions. The models also don't suffer from second order serial correlation as shown in table 4.11 and 4.12 by Arellano-Bond AR (2) showing the model does not suffer from

The Dynamic nature of the model was captured by incorporating the lagged dependent variables up to lag 1 to avoid losing more degrees of freedom since the study used annual data. The lagged dependent variables of (Tobin Q L1 and LnEVA L1) measure the extent to which past year's performance contributes to the current year's performance of MAFs. The coefficients of the lagged dependent variables are 25.38% (significant at 5%) and 30.30% (significant at 5%) for Tobin Q L1 and LnEVA L1 respectively as shown in table 4.11 and 4.12. The significance of these lagged coefficients indicate existence of persistence in performance of MAFs and this therefore justified the use of a dynamic model.

Table 4. 11: Dynamic panel-data estimation, two-step system GMM: Tobin Q

Dynamic panel-data estimation, two-step system GMM					
Group variable: Firm_ID			Number of obs	=	77
Time variable : Year			Number of groups	=	9
Number of instruments = 9			Obs per group: min	=	6
Wald chi2(6) = 7821.93			avg	=	8.56
Prob> chi2 = 0.000			max	=	9
TobinQ| Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
TobinQ					
L1. | .2537811	.0625076	4.06	0.000	.2451604	.8624019
STDR | -.1954826	.1524095	-2.61	0.005	-.4009691	1.196547
LTDR | .2114218	.0822653	2.57	0.005	-.9362796	1.359123
_cons | .5429004	.2513428	2.16	0.031	.0912827	1.918587
Arellano-Bond test for AR(1) in first differences: z = -1.72 Pr > z = 0.085					
Arellano-Bond test for AR(2) in first differences: z = -0.18 Pr > z = 0.861					
Sargan test of overid. restrictions: chi2(2) = 0.57 Prob> chi2 = 0.750					
Hansen test of overid. restrictions: chi2(2) = 0.99 Prob> chi2 = 0.609					

Source: Research data (2021)

Table 4. 12: Dynamic panel-data estimation, two-step system GMM: LnEVA

Dynamic panel-data estimation, two-step system GMM					
Group variable: Firm_ID			Number of obs	=	77
Time variable : Year			Number of groups	=	9
Number of instruments = 9			Obs per group: min	=	6
Wald chi2(6) = 33052.63			avg	=	8.56
Prob> chi2 = 0.000			max	=	9
LnEVA | Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LnEVA |					
L1. | .3027194	.1073473	2.82	0.005	.0636539	.5423842
STDR | -.2495623	.0897706	-2.78	0.005	-1.271131	4.251966
LTDR | .4716380	.0870014	5.42	0.000	.0333470	6.109931
_cons | .6949332	.1946592	3.57	0.000	.4352974	4.845316
Arellano-Bond test for AR(1) in first differences: z = -2.16 Pr > z = 0.071					
Arellano-Bond test for AR(2) in first differences: z = 0.59 Pr > z = 0.558					
Sargan test of overid. restrictions: chi2(2) = 6.54 Prob> chi2 = 0.058					
Hansen test of overid. restrictions: chi2(2) = 1.39 Prob> chi2 = 0.498					

Source: Research data (2021)

The unmoderated models were therefore predicted to;

$$Tobin\ Q = 0.5429 + 0.2538TobinQit - 1 - 0.1955STDR + 0.2114LTDR$$

$$LnEVA = 0.6949 + 0.3027LnEVAit - 1 - 0.2496STDR + 0.4716LTDR$$

4.7.2 Hypotheses tests

The study hypotheses developed were tested per objective as follows;

$H_{01.1}$: Short term debt financing has no significant influence on performance of listed manufacturing and allied firms in Kenya.

$H_{01.2}$: Short term debt financing has no significant influence on performance of listed manufacturing and allied firms in Kenya.

Tables 4.15 shows that the coefficient for STDR was negative (β = -0.1955) significant at the 5% significance level when Tobin Q was the dependent variable. In table 4.15, the coefficient of STDR is also negative (β = -0.2496) and significant at the 5% level of significance when the dependent variable is LnEVA. This shows that for a unit increase in short term debt ratio drives performance on a downward trajectory by 19.55% and 24.96% for Tobin Q and LnEVA respectively. MAFs should therefore minimize use of short-term debt in their financing plan. The Z – statistics are significant for both and hence we reject the null sub - hypothesis and conclude that STDR has a negative and significant influence on financial performance measures of Tobin Q and LnEVA.

The regression estimate for Long term debt ratio (LTDR) was positive and significant at the 5% significance level with coefficients of 0.2114218 and 0.471638 with Tobin Q and LnEVA as dependent variables respectively. This shows that a unit increase in long term debt ratio in the financing structure accelerates Tobin Q by 0.211 and LnEVA by 0.472 units. The Z -statistic for LTDR is significant at 5% level as shown in table 4.11 and table 4.12. The null sub – hypothesis was therefore rejected in favor of the alternate and conclude that LTDR has a positive and significant influence on Tobin Q and EVA as financial performance proxies.

STDR comprising of liabilities expected to mature within one year was operationalized in this study as a ratio of short-term debt to total assets and was found to have a negative and significant influence on performance of MAFs. This could be attributed to the fact that short term financing sources charge much higher interest rates in relative terms and is riskier as it needs to be retired within a shorter duration. Given its negative influence on performance, managers need to use it cautiously by adopting a more conservative financing approach that can improve performance. This will shield the MAFs as conservative financing approach is less vulnerable to increase in short term rates.

This finding is in agreement with the empirical result of Githire & Muturi (2015) who found that financial performance of listed non-financial firms is significantly negatively affected by short term debt. Further, Karuma, Ndambiri&Oluoch (2018) found that Short term debt was had a negative effect on performance of manufacturing firms. However, a study by Salim & Yadav (2012) in the case of Malaysian Listed Companies found that STD had a strong positive and significant relationship Tobin Q. Further, the finding by Tufa (2016) who studied the impact of corporate capital structure on profitability of manufacturing firms in Ethiopia found that short term debt had a significant positive effect on profitability. The difference in findings could be a result of different methodology used.

LTDR had a positive and significant influence on performance. This could be attributed to the fact that borrowing long term eases pressure from the firm as repayment is spread over a long duration and is suitable for matching long term investments which characterize the manufacturing sector. Higher gearing levels which enhance financial performance through tax shields advanced on interest paid on debt. The long-term debt allows the firm to repay the debt from the proceeds generated from the asset it was used to finance as it could be tied to project financing.

This finding concurs with Nyamoma & Sporta (2020) who found that debt financing had a positive and significant effect with EVA. Further, Salim & Yadav (2012) found that long term debthad astrong positive and significant relationship withTobin Q. Other studies with similar findings include; Dang, Bui, Dao and Nguyen, (2019) Yasin & Pramita (2021) and Tufa (2016). However, the study finding by Kodongo, Mokoteli&Maina (2015) differ with this finding. This could be attributed to a variation in sample size used and different study period as well as adoption of a different estimation model as their study had adopted the fixed effects model.

The finding on this objective supports conventional finance which recommends that more long-term debt is favorable for larger firms so that they spread repayment over long period and focus on growth since having more short-term debt can stifle growth as the firm focuses on defraying the costs relating to operating debt. The positive effect of LTDR on performance is in line with MM theory to take advantage of interest tax shield as more debt means more interest costs which are deductible hence minimizing tax payable from profits. This shield is normally used by companies for tax planning purposes to pay the least taxes.

4.7.3 Moderated results

The study used two moderating variables; economic growth rate and earnings volatility. Earnings volatility was used to measure risk and cost of financial distress while economic growth rate measured macroeconomic performance. The moderating variables were implied from the trade – off model. The two-step system GMM model was estimated and presented in table 4.13 and 4.14.

The EGR which show macroeconomic growth shows a positive and significant effect on both Tobin Q and LnEVA having regression weights of .1582140 and .2052327 respectively. This shows that economic growth rate

has a significant positive influence on performance of the manufacturing sector in Kenya. The average economic growth was 0.0584 (5.84%) through the study period as measured by real GDP growth rate. This positive economic outlook created an appropriate environment for investment and consumption which enabled manufacturing to thrive. This further supports the finding by (Ngugi, 2008) that GDP growth rate has a positive impact on leverage which is a trajectory of investor confidence in a growing economy to stimulate demand hence the possibility upside profits.

EVOL which was used to measure risk and cost of financial distress showed a negative but not significant effect on Tobin Q while having a negative and significant effect on LnEVA. The EVOL had a standard deviation of 0.0761 showing a small variability in earnings which affects performance negatively. EVOL averaged 0.0754 through the study period for the MFAs and this exposes the firms to agency cost of borrowing which curtails their performance. This finding further affirms the finding of Fama & French (2002) who identified a direct relationship consistent with the agency cost of debt, resulting in risky firms borrowing more. This negative effect further supports the argument that earnings volatility has a positive and significant effect on leverage which in turn curtails performance (Saif-Alyousfi, Md-Rus, Taufil-Mohd, Taib, & Shadar, 2020).

The moderating variables have however worsened the effect of STDR on Tobin Q slightly. This could be attributed to the negative influence of EVOL which could expose the firm to risk and hence face higher borrowing costs. There is however a slight improvement with LnEVA though the coefficients are still negative. This improvement could be attributed to the positive effect of EGR which neutralises the negative effect of EVOL to some extent through reduced capital costs in a growing economy. The moderator variables improved the effects of LTDR, EAR and ATNG on Tobin Q while the effect on RR on Tobin Q was worsened. On the other hand, the effect of moderator variables on LnEVA was worsened in the case of LTDR, EAR while improved in the case of RR and ATNG.

Table 4. 13: Dynamic panel-data estimation, two-step system GMM: Tobin Q with moderator variables

Dynamic panel-data estimation, two-step system GMM					
Group variable: Firm_ID			Number of obs	=	77
Time variable : Year			Number of groups	=	9
Number of instruments = 11			Obs per group: min	=	6
Wald chi2(8) = 5676.33			avg	=	8.56
Prob> chi2 = 0.000			max	=	9
TobinQ |	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
TobinQ |					
L1. |	.2173323	.0620950	3.50	0.001	.1832243 .8514403
STDR |	-.1974253	.8973877	0.22	0.827	-3.092903 3.774235
LTDR |	.2648140	.0652251	4.06	0.000	.6652861 2.536038
EGR |	.1582140	.0577423	2.74	0.006	.4616602 1.038149
EVOL |	-.0605143	.0364544	-1.66	0.097	-3.874636 .5936071
_cons |	.6179752	.3185429	1.94	0.052	-.6755146 1.619465
Arellano-Bond test for AR(1) in first differences: z = -0.43 Pr > z = 0.664					
Arellano-Bond test for AR(2) in first differences: z = 0.06 Pr > z = 0.951					
Sargan test of overid. restrictions: chi2(2) = 0.89 Prob> chi2 = 0.642					
Hansen test of overid. restrictions: chi2(2) = 1.12 Prob> chi2 = 0.571					

Source: Research data (2021)

Table 4. 14: Dynamic panel-data estimation, two-step system GMM: LnEVA with moderator variables

Dynamic panel-data estimation, two-step system GMM					
Group variable: Firm_ID			Number of obs	=	77
Time variable : Year			Number of groups	=	9
Number of instruments = 11			Obs per group: min	=	6.00
Wald chi2(8) = 1135.32			avg	=	8.56
Prob> chi2 = 0.000			max	=	9
LnEVA |	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
LnEVA |					
L1. |	.2377314	.0729237	3.26	0.001	.7475293 4.127934
STDR |	-.2165173	.0933264	-2.32	0.020	-.6335203 2.418691
LTDR |	.4373082	.1026545	4.26	0.000	.3262925 6.511781
EGR |	.2052327	.0430257	4.77	0.000	.3929039 2.38825
EVOL |	-.1827439	.0048862	-3.74	0.000	-1.129942 4.65339
_cons |	.6583926	.3275585	2.01	0.044	.3931527 3.653804
Arellano-Bond test for AR(1) in first differences: z = -1.53 Pr > z = 0.106					
Arellano-Bond test for AR(2) in first differences: z = -0.43 Pr > z = 0.581					
Sargan test of overid. restrictions: chi2(2) = 2.13 Prob> chi2 = 0.394					
Hansen test of overid. restrictions: chi2(2) = 0.46 Prob> chi2 = 0.796					

Source: Research data (2021)

The moderated models were estimated as follows;

$$Tobin\ Q = 0.6180 + 0.2173TobinQit - 1 - 0.1974STDR + 0.2648LTDR + 0.1582EGR - 0.0605$$

$$LnEVA = 0.6583 + 0.2377LnEVAit - 1 - 0.2165STDR + 0.4373LTDR + 0.2052EGR - 0.1827EVOL$$

5.0 Conclusion

The success of Kenya's manufacturing sector is essential to propel the country to realize one of the Big 4 agenda on industrialization. Renewed efforts to revive the sector through the Big 4 Agenda seeks to increase its contribution to GDP to 15% by 2022. This depends on the sector's ability to effectively determine the optimum and appropriate financing mix to generate viable returns to shareholders and stay afloat.

Based on the findings on STDR and performance of MAFs, STDR has a statistically significant negative effect on performance of listed MAFs in Kenya. The study therefore concludes that an increase in use of short-term debt in the financing structure is detrimental to performance since most short-term debt is relatively expensive and risky due to short maturity and repayment period given by the lender.

On the other hand, LTDR was found to have a significant positive effect on performance. The study thus concludes that an increase in long term debt financing is beneficial as it is relatively cheaper, allowing the firm to reorganize its operations. Long term debt also frees the firm from unnecessary pressure of making huge payments in the short term hence allowing the firm to reinvest for expansion thus contributing positively to performance.

5.1 Recommendations

Based on the study findings and conclusions, the study therefore makes the following recommendations

i. MAFs Finance Manager need to minimize use of short time financing sources since they lead to destruction of wealth. If they need to use them, they should negotiate for more favorable terms than those they give to their debtors. This will ensure the MAFs is not starved of financial resources for short term operation.
ii. MAFs should therefore concentrate on recovering cash flow quickly to minimize need for short term financing.
iii. MAFs need to consider use of more long-term financing sources as they improve performance due to the longer period available to reorganize and plan for the repayment. Long term debt loses value due to inflation in the long run and hence saving to the firms again due to the time value of money concept.
iv. The government can reduce cost of borrowing through sound monetary and fiscal policies which allow

firms access cheap credit so that they make more money than what they sacrifice in servicing debt. This will revive the country's manufacturing sector which is key to transforming this country into an industrialized nation for achievement of vision 2030.

v. Given that STDR had a negative effect on the performance of MAFs, the government needs to formulate a Public Private Partnership (PPP) framework that under extreme conditions, the government can bail out the MAFs with respect to short term debt, hence the need to review the existing Capital Markets Authority act to incorporate the initiative.

5.2 Suggestions for Further study

For purpose of future studies, this study can be varied to consider a balanced panel analysis to consider equal weighting of the study units. Other panel data econometric techniques could be applied to confirm if the effect changes as well as inclusion of other moderating variables.

References

Abor, J., (2005). The effect of capital structure on profitability: empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, 6(5), pp. 438-45.

Abraham, R. & Harrington, C. (2011). Seasoned equity offerings: Characteristics of firms. *International Journal of Business, Humanities and Technology*, 1 (3),26-33.

Akingunola, R. O., Olawale, L. S., & Olaniyan, J. D. (2018). Capital Structure Decision and Firm Performance: Evidence from Non-Financial Firms in Nigeria. *International Journal of Economics* 13(6), 351-364.

Arellano, M. & Bond, S.R. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *Review of Economic Studies* 58, 2777297.

Bakari, S. (2018). The Impact of Domestic Investment on Economic Growth New Policy Analysis from Algeria. *Bulletin of Economic Theory and Analysis*, 3 (1), 35-51. DOI: 10.25229/beta.337367

Baltagi, B.H., Bresson, G. & Pirotte, A. (2003), Fixed effects, random effects or Hausman–Taylor? A pretest estimator, *Economics Letter* 79, 361–369.

Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, *87*(1), 115–143.

Dang, Y. T., Bui, N. T., Dao, A. T., & Nguyen, H. T. (2019). Impact of capital strucuture on firm performance: Empirical evidence from listed food and beverage companies in Vietnam. *International Journal of Economics, Commerce and Management* , 7 (2), 567-577.

Donaldson, G. (1961). Corporate Debt Capacity: *A Study of Corporate Debt Policy and the Determination of Corporate Debt Capacity*. Boston: Harvard Business School.

Ebaid, E. I. (2009). The impact of capital structure choice on firm performance: empirical evidence from Egypt, *Journal of risk Finance*, Vol. 7, pg, 477-487.

Economic times (2020). https://economictimes.indiatimes.com/definition/debt-consolidation *Economics and Statistics* 69: 709–748.

Flannery, M.J. & Hankins, K.W. (2013), Estimating dynamic panel models in corporate finance, *Journal of Corporate Finance*, Vol. 19 No. 1, pp. 1-19.

Githaigo, P. N., & Kabiru, C. G. (2015). Debt financing and financial performance of small and medium size enterprises: evidence from Kenya. *Journal of Economics Finance and Accounting,*2(3), 473-471

Githire, C., & Muturi, W. (2015). Effects of capital structure on financial performance of firms in Kenya: evidence from firms listed at the Nairobi Securities Exchange. *International Journal of Economics, Commerce and Management*,3(4), 1-10.

Hull, J. C., (2015). *Options, Futures and Other Derivatives*, 9th ed, Pearson, U.S.A

Jang, S., (2011). Growth-focused or profit-focused firms: transitions toward profitable growth, *Tourism Management* 32 (3), 667–674.

Karuma, M. N., Ndambiri, A. N., & Oluoch, J. O. (2018). Effect of debt financing on financial performance of manufacturing firms in nairobi securities exchange, *The Strategic Journal of Business & Change Management*. ISSN 2312-9492(Online) 2414-8970

Khemiri, W. & Noubbigh, H. (2018), Determinants of capital structure: evidence from sub-Saharan African firms, *The Quarterly Review of Economics and Finance*, Vol. 70 No. 11, pp. 150-159.

Kodongo, O., Mokoteli, M., T. & Maina, N., L. (2015). Capital structure, Profitability and Firm value: Panel evidence of listed firms in Kenya. *The African Finance Journal,* Volume 17 Part 1, 2015

Modigliani F., Miller M., (1958). The Cost of Capital, Corporation Finance and the Theory of Investment, *The American Economic Review*, 48(3): 261-281.

Moradi, A.&Paulet, E. (2019), The firm-specific determinants of capital structure–An empirical analysis of firms before and during the Euro Crisis, *Research in International Business and Finance,* Vol. 47 No. 1, pp. 150-161.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance, 39(3), 574- 592.*

Myers, S.& Majluf,N.(1984).Corporate Financing and Investment Decisions when firms have information that investors do not have. *Journal of Financial Economics 13.187-221.*

Nyamoma, N. C., & Sporta, F. (2020). The Effect of Financing Decisions on Shareholders' Value Creation of Manufacturing Firms Listed at the Nairobi Securities Exchange In Kenya. *Unpublished thesis.*

Onchong'a, E. N., Muturi, W. & Atambo, W. (2016). Effects of debt financing on businesses firms financial performance. *International Journal of Social Sciences and Information Technology,*2(5), 723-737

Rajan, R.G. & Zingales, L. (1995), What do we know about capital structure? Some evidence frominternational data.*The Journal of Finance*, Vol. 50 No. 5, pp. 1421-1460.

Ramli, N.A., Latan, H. & Solovida, G.T. (2019), Determinants of capital structure and firm financialperformance—a PLS-SEM approach: evidence from Malaysia and Indonesia.*The Quarterly Review of Economics and Finance,* Vol. 71 No. 2, pp. 148-160.

Ray, S. (2012). *Efficacy of Economic Value-Added Concept in Business Performance Measurement.* Advances in Information Technology and Management 2 (2): 260–267.

Saif-Alyousfi, Y.H, Md-Rus, R., Taufil-Mohd, K. N., Taib, H. M., & Shadar, H. K., (2020). Determinants of capital structure:evidence from Malaysian firms, *Asia-Pacific Journal of Business Administration, Emerald Publishing Limited* 1757-4323.

Salim, M. & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies, *International Congress on Interdisciplinary Business and Social Science* 2012 pp 156 – 166

Sauro, M., & Tafirei, M. (2016). EVA and Stock Returns: Are They Correlated? *Financial Assets and Investing*, *7*(2), 34-51.

Shil, N., C. (2009). Performance Measures: An Application of Economic Value Added. *International Journal of Business and Management* 4 (3): 169–177.

Soumadi &Hayajneh. (2012). Capital structure and corporate performance empirical study on the public jordanian shareholdings firms listed in the Amman stock market, *European Scientific Journal October edition vol*. 8, No.22 ISSN:, 1857 – 7881.

Tang, C., Jang, S., (2007). Revisit to the determinants of capital structure: a comparison between lodging firms and software firms. *International Journal of Hospitality Management* 26 (1), 175–18.

Tufa, F. B. (2016). Corporate Capital Structure and Its Impact on Profitability: Evidence from Manufacturing Firms in Ethiopia *(Doctoral dissertation, Addis Ababa University).*

Westerlund, J. (2007). Testing for error correction in panel data. *Oxford Bulletin of*

Wu. C., & Josh. N., N. (2019). The relationship between capital structure and profitability of U.S. manufacturing companies: an empirical analysis, *Unpublished thesis*.

Yasin, M., & Pramita Studiviany S. (2021). The Influence of Profitability and Capital Structure on Company Value in Coal Sub-Sector Mining Companies Registered in Idx For The 2014-2017. *Enrichment: Journal of Management*, *11*(2), 516-520.